CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

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ORDER NO. R5-2007-XXXX
NPDES NO. CA0083801

WASTE DISCHARGE REQUIREMENTS FOR THE MODESTO IRRIGATION DISTRICT MODESTO REGIONAL WATER TREATMENT PLANT STANISLAUS COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	Modesto Irrigation District
Name of Facility	Modesto Regional Water Treatment Plant
Facility Address	1008 Reservoir Rd.
	Waterford, CA 95386
	Stanislaus County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a **minor** discharge.	

The discharge by the Modesto Irrigation District from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Storm water lagoon discharge	37º, 39', 12" N	120º, 40', 21" W	Modesto Irrigation Main Canal
002	Sedimentation basin discharge	37º, 39', 13" N	120º, 40', 21" W	Modesto Irrigation Main Canal

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	**<Adoption Date>**
This Order shall become effective on:	**<Effective Date>**
This Order shall expire on:	**<Expiration Date>**
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	**180 days prior to the Order expiration date**

IT IS HEREBY ORDERED, that Order No. **R5-2002-0027** is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

PAMELA C. CREEDON, Executive Officer

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I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 4. Facility Information

Discharger	Modesto Irrigation District
Name of Facility	Modesto Regional Water Treatment Plant
Facility Address	1008 Reservoir Rd. Waterford, CA 95386 Stanislaus County
Facility Contact, Title, and Phone	Claudia Hidahl, Water Quality Supervisor, (209) 526-7608
Mailing Address	Modesto Irrigation District P.O. Box 4060 Modesto, CA 95352
Type of Facility	Municipal Water Treatment Plant
Facility Design Flow	Water Treatment Plant Discharge 2.9 mgd

II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Regional Water Board), finds:

A. Background. Modesto Irrigation District (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2002-0027 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA 0083801. The Discharger submitted a Report of Waste Discharge, dated June 13, 2006**,** and applied for a NPDES permit renewal to discharge up to 2.90 mgd of settled filter backwash and stormwater from the Modesto Regional Water Treatment Plant**,** hereinafter Facility. The application included a complete characterization of the effluent, including all priority pollutant constituents.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Facility Description. The Discharger owns and operates a water treatment plant. The treatment system consists of two ozone contact basins, two flocculation basins, two sedimentation basins, six deep bed anthracite coal filtration units, and two clearwells. Ozone, alum, polymers, chlorine, lime, calcium thiosulfate and carbon dioxide are added to the process as necessary. Settled filter backwash and stormwater is discharged to the Modesto Irrigation Main Canal, a water of the United States that is hydraulically connected to the Stanislaus River within the San Joaquin River Hydrologic Region, Sub-basin 535.30. Attachment B provides a map of the area and the layout of the Facility

The MRWTP is in the design phase of a plant expansion to increase the drinking water production capacity to 72 million gallons per day using submerged membranes. The membrane filtration system will consist of 6 tanks containing submerged PVDF membranes. Two Dissolved Air Flotation (DAF) treatment units will be added, one will treat the membrane backwash and Clean in Place (CIP) process waste from the new addition to the plant, and the other will treat backwash water from the conventional treatment plant. Additional chemicals that will be used in the new portion of the plant include liquid Oxygen to produce ozone; CIBA Chemicals Magnafloc LT25 or equivalent polymer, phosphoric acid; sulfuric acid and citric acid. Construction of the plant expansion should begin by September 2007 and be completed by March 1, 2010. Attachment C provides a flow schematic of the Facility that includes both current plant operations (which are shown on the lower portion of the schematic) and the future plant expansion (shown on the upper portion of the schematic).

C. Legal Authorities. This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

D. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G are also incorporated into this Order.

E. California Environmental Quality Act (CEQA). Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.

F. Technology-based Effluent Limitations. Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)[1] require that permits include conditions meeting applicable technology-based requirements at a minimum. This Order includes technology-based requirements based on Best Professional Judgment (BPJ) in accordance with Part 125, section 125.3. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).

G. Water Quality-based Effluent Limitations. Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. Section 122.44(d)(1)(i) mandates that permits include effluent limitations for

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

H. Water Quality Control Plans. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the "…*beneficial uses of any specifically identified water body generally apply to its tributary streams*." The Basin Plan does not specifically identify beneficial uses for the Modesto Irrigation Main Canal, but does identify present and potential uses for the Stanislaus River, to which the Modesto Irrigation Main Canal is hydraulically connected. The Canal is a manmade conveyance; therefore the tributary rule is not directly applicable in this case. Nevertheless, given the flow conditions and other factors described in the Fact sheet, several of the beneficial uses attributed to the Stanislaus River also apply to the Canal. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the Modesto Irrigation District Main Canal are as follows: municipal and domestic supply; agricultural supply, including stock watering; industrial service supply; industrial process supply; hydropower generation; water contact recreation, non-contact water recreation, including aesthetic enjoyment; commercial and sport fishing; warm freshwater habitat; and wildlife habitat.

Table 5. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001, 002	**Modesto Irrigation District Main Canal**	Existing: Municipal and domestic water supply (MUN). Agricultural supply (AGR) Industrial service supply (IND) Industrial process supply (PRO) Hydropower generation (POW), Warm freshwater habitat (WARM) Wildlife habitat (WILD) Contact (REC-1) and non-contact (REC-2) water recreation. Intermittent: Ground water recharge (GWR), freshwater replenishment (FRSH).

I. National Toxics Rule (NTR) and California Toxics Rule (CTR). USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

J. State Implementation Policy. On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

K. Compliance Schedules and Interim Requirements. In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See In the Matter of Waste Discharge Requirements for Avon Refinery (State Board Order WQ 2001-06 at pp. 53-55). See also Communities for a Better Environment et al. v. State Water Resources Control Board, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and interim effluent limitations and discharge specifications. A detailed discussion of the basis for the compliance schedules and interim effluent limitations and discharge specifications is included in the Fact Sheet.

L. Alaska Rule. On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

M. Stringency of Requirements for Individual Pollutants. This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on flow, settleable solids and total suspended solids (TSS). The water quality-based effluent limitations consist of restrictions on pH, aluminum, copper, manganese and chlorine. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's

restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

N. Antidegradation Policy. Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

O. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

P. Monitoring and Reporting. Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.

Q. Standard and Special Provisions. Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.

R. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, V.B. and VI.C.6.a. of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

S. Notification of Interested Parties. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste

Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.

T. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

III. DISCHARGE PROHIBITIONS

A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.

B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).

C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations – Discharge Points 001 and 002

1. Final Effluent Limitations – Discharge Points 001 and 002

The Discharger shall maintain compliance with the following effluent limitations at Discharge Points 001 and 002 with compliance measured at Monitoring Locations EFF-001 and EFF-002 as described in the attached MRP (Attachment E):

a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:

Table 6. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	30		45		
	lbs/day[1]	250		1086		
Settleable Solids	ml/L	0.1		0.5		
Aluminum	µg/L	74		149		
Copper	µg/L	2.2		4.5		
pH	pH units				6.5	8.5
Residual Chlorine	mg/L	0.01		0.02		

[1] Based on a design flow of 1.0 mgd, average monthly, and 2.9 mgd, average daily.

b. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

c. **Average Monthly Discharge Flow.** The Average Monthly Discharge Flow shall not exceed 1.0 mgd.

d. **Average Daily Discharge Flow.** The Average Daily Discharge Flow shall not exceed 2.9 mgd.

e. **Manganese.** The annual average effluent concentration of manganese shall not exceed 50 µg/L.

2. Interim Effluent Limitations

a. **Effective immediately** and ending on July 31, 2012**,** the Discharger shall maintain compliance with the following limitations for aluminum at 001 and 002, with compliance measured at Monitoring Location EFF-001 and EFF-002 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7a. Interim Effluent Limitations for Aluminum

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum	µg/L		715		

b. **Effective immediately** and ending on May 17, 2010 the Discharger shall maintain compliance with the following limitations for copper at 001 and 002, with compliance measured at Monitoring Location EFF-001 and EFF-002 as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision.

Table 7b. Interim Effluent Limitations for Copper

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper	µg/L		11		

B. Land Discharge Specifications – Storm water Lagoon

1. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the stormwater lagoon is prohibited.

2. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

3. The storm water lagoon shall be managed to prevent breeding of mosquitoes. In particular,

a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
b. Weeds shall be minimized.

4. Dead algae, vegetation, and debris shall not accumulate on the water surface.

5. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas *(or property owned by the Discharger)*.

6. As a means of discerning compliance with Land Discharge Specification 5, the dissolved oxygen content in the upper zone (1 foot) of the storm water lagoon shall not be less than 1.0 mg/L.

7. The stormwater lagoon shall not have a pH less than 6.5 or greater than 8.5.

8. The freeboard of the stormwater lagoon shall never be less than two feet as measured from the water surface to the lowest point of overflow.

C. Reclamation Specifications - Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Modesto Irrigation District Main Canal:

1. **Biostimulatory Substances**. Water to contain biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

2. **Chemical Constituents**. Chemical constituents to be present in concentrations that adversely affect beneficial uses.

3. **Color**. Discoloration that causes nuisance or adversely affects beneficial uses.

4. **Dissolved Oxygen**:

   a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass.
   b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
   c. The dissolved oxygen concentration to be reduced below 7.0.

5. **Floating Material**. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

6. **Oil and Grease**. Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses**)**

7. **pH**. The pH to be depressed below 6.5 or raised above 8.5 nor changed by more than 0.5 units.

8. **Pesticides**:

   a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
   b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;
   c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer**/**prescribed in *Standard Methods for the Examination of Water and Wastewater, 18th Edition*, or other equivalent methods approved by the Executive Officer.
   d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
   e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.
   f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15 or specified in Table 64444-A (Organic Chemicals) of Section 64444 of Title 22 of the California Code of Regulations.
   g. Thiobencarb to be present in excess of 1.0 µg/L.

9. **Radioactivity**:

   a. Radionuclides to be present in concentrations that are harmful or deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
   b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

10. **Suspended Sediments**. The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

11. **Settleable Substances**. Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses

12. **Suspended Material**. Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

13. **Taste and Odors**. Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses of domestic or municipal water supplies.

14. **Temperature**. The natural temperature to be increased by more than 5°F.

15. **Toxicity**. Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

16. **Turbidity**. The turbidity to increase as follows:
    a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
    c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
    d. More than 10 percent where natural turbidity is greater than 100 NTUs.

B. Groundwater Limitations

The discharge, in combination with any other sources, shall not cause the underlying groundwater to exceed water quality objectives, unreasonably affect beneficial uses or cause a condition of pollution or nuisance.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. The Discharger shall comply with the following provisions:

    a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, Division 3, Chapter 26.

    b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

        i. violation of any term or condition contained in this Order;

        ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

        iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and

iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 Code of Federal Regulations (CFR) 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

   The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:

   i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
   ii. controls any pollutant limited in the Order.

   The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.

f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include

such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.

g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.

h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.

i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.

j. Safeguard to electric power failure:

   i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
   ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.
   iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.

k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

   The technical report shall:

   i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions that it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.

m. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.

o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.

p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.

q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.

r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.

s. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

u. For PTOWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211)

v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

C. Special Provisions

1. Reopener Provisions

a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:

   i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
   ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.

c. Pollution Prevention. This Order requires the Discharger prepare pollution prevention plans following CWC section 13263.3(d)(3) for copper and aluminum. Based on a review of the pollution prevention plans, this Order may be reopened for addition and/or modification of effluent limitations and requirements for these constituents.

d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions.

e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper, manganese and aluminum. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, this Provision requires the Discharger to investigate, if applicable, the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exceeds the toxicity numeric monitoring trigger established in this Provision, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE Work Plan, and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the

causative agents and sources of whole effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Work Plan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.

i. **Initial Investigative Toxicity Reduction Evaluation (TRE) Work Plan. Within 90 days of the effective date of this Order,** the Discharger shall submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer. This should be a one to two page document including, at minimum:

   a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of effluent toxicity, effluent variability, and treatment system efficiency;

   b) A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in operation of the facility; and

   c) A discussion of who will conduct the Toxicity Identification Evaluation, if necessary (i.e. an in-house expert or outside contractor).

ii. **Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, and the testing meets all test acceptability criteria, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. WET testing results exceeding the monitoring trigger during accelerated monitoring demonstrates a pattern of toxicity and requires the Discharger to initiate a TRE to address the effluent toxicity.

iii. **Numeric Monitoring Trigger.** The numeric toxicity monitoring trigger is > **1 TUc** (where TUc = 100/NOEC). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE.

iv. **Accelerated Monitoring Specifications.** If the monitoring trigger is exceeded during regular chronic toxicity testing, within 14-days of notification by the laboratory of the test results, the Discharger shall initiate accelerated monitoring. Accelerated monitoring shall consist of four (4) chronic toxicity tests in a six-week period (i.e. one test every two weeks) using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

   a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.

b) If the source(s) of the toxicity is easily identified (i.e. temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.

c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and initiate a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including TRE WET monitoring schedule;
2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
3) A schedule for these actions.

Within sixty (60) days of notification by the laboratory of the test results, the Discharger shall submit to the Regional Water Board a TRE Work Plan for approval by the Executive Officer. The TRE Work Plan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Work Plan must be developed in accordance with EPA guidance[2].

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** The Discharger shall prepare a salinity evaluation and minimization plan to address sources of salinity from the domestic water treatment system. The plan shall be completed and submitted to the Regional Water Board **within 9 months of the effective date of this Order** for approval by the Executive Officer.

4. Construction, Operation and Maintenance Specifications – Not applicable

5. Special Provisions for Municipal Facilities (POTWs Only – Not applicable)

[2] See Attachment F (Fact Sheet) Section VII.B.2.a. for a list of EPA guidance documents that must be considered in development of the TRE Workplan.

6. Other Special Provisions

a. Solids Discharge Specifications

i. Collected screenings, residual sludge and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste,* as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq.

ii. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90** days in advance of the change.

b. Change of Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

7. Compliance Schedules

a. Compliance Schedules for Final Effluent Limitations for Copper

i. **By May 18, 2010,** the Discharger shall comply with the final effluent limitations for copper. This compliance schedule is contingent upon the Discharger submitting a compliance schedule justification for copper **within 90 days of the effective date of this Order**. The compliance schedule justification shall include all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

ii. **Corrective Action Plan/Implementation Schedule.** The Discharger shall submit to the Regional Water Board a corrective action plan and implementation schedule to assure compliance with the final effluent

limitations for copper by May 18, 2010 **within 6 months of the effective date of this Order**.

iii. **Pollution Prevention Plan.** The Discharger shall prepare and implement a pollution prevention plan for copper in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan are outlined in the Fact Sheet, Attachment F, VII.B.3.a. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

iv. **Treatment Feasibility Study.** The Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove copper from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The treatment feasibility study shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

b. **Compliance Schedules for Final Effluent Limitations for Aluminum**

i. **By July 31, 2012,** the Discharger shall comply with the final effluent limitations for aluminum. This compliance schedule is contingent upon the Discharger submitting a compliance schedule justification for aluminum **within 90 days of the effective date of this Order**. The compliance schedule justification shall include all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than 1 year, the Discharger shall submit semi-annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

ii. **Corrective Action Plan/Implementation Schedule.** The Discharger shall submit to the Regional Water Board a corrective action plan and implementation schedule to assure compliance with the final effluent limitations for aluminum **within 6 months of the effective date of this Order.**

iii. **Pollution Prevention Plan.** The Discharger shall prepare a pollution prevention plan for aluminum, in accordance with CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plan

are outlined in the Fact Sheet, Attachment F, VII.B.3.a. A work plan and time schedule for preparation of the pollution prevention plan shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The Pollution Prevention Plan shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.). The Pollution Prevention Plan required herein is not incorporated by reference into this Order.

iv. **Treatment Feasibility Study.** The Discharger is required to perform an engineering treatment feasibility study examining the feasibility, costs and benefits of different treatment options that may be required to remove aluminum from the discharge. A work plan and time schedule for preparation of the treatment feasibility study shall be completed and submitted to the Regional Water Board **within 6 months of the effective date of this Order** for approval by the Executive Officer. The treatment feasibility study shall be completed and submitted to the Regional Water Board **within two (2) years following work plan approval by the Executive Officer**, and progress reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).

VII. COMPLIANCE DETERMINATION

A. Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

1. **Aluminum Effluent Limitations**. Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by US EPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.

2. **Manganese Effluent Limitations.** Compliance with the annual average effluent limitation for manganese shall be determined based on the average of all effluent manganese samples (as total recoverable) collected between 1 January and 31 December, annually.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Practicable Treatment or Control (BPTC): BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (referred to as the "Antidegradation Policy"). BPTC is the treatment or control of a discharge necessary to assure that, *"(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."* Pollution is defined in CWC Section 13050(l). In general, an exceedance of a water quality objective in the Basin Plan constitutes "pollution".

Bioaccumulative pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic pollutants are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the

arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ) are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA) is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Estimated Chemical Concentration is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL) means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML) is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND) are those sample results less than the laboratory's MDL.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for

sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

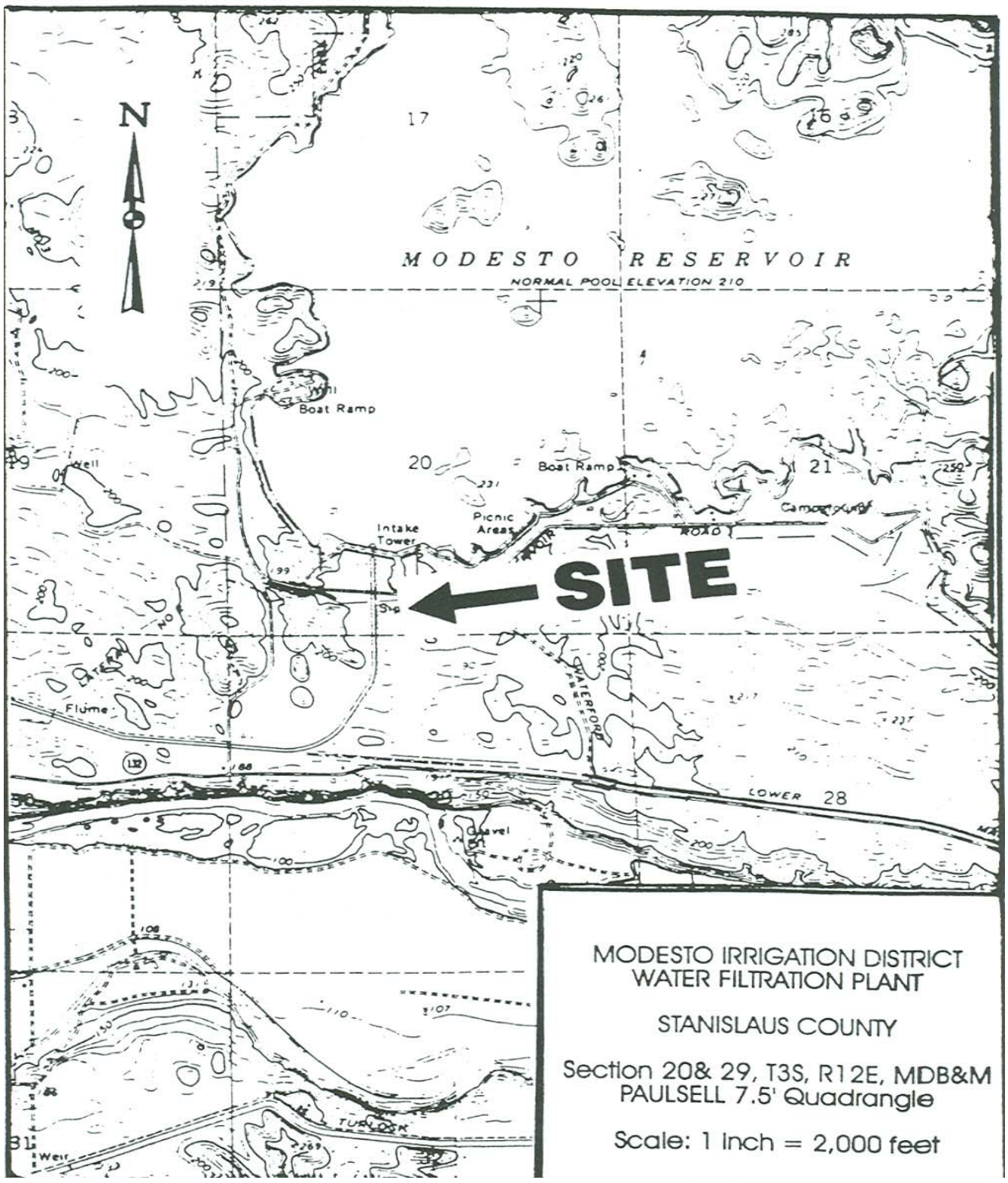
x is the observed value;

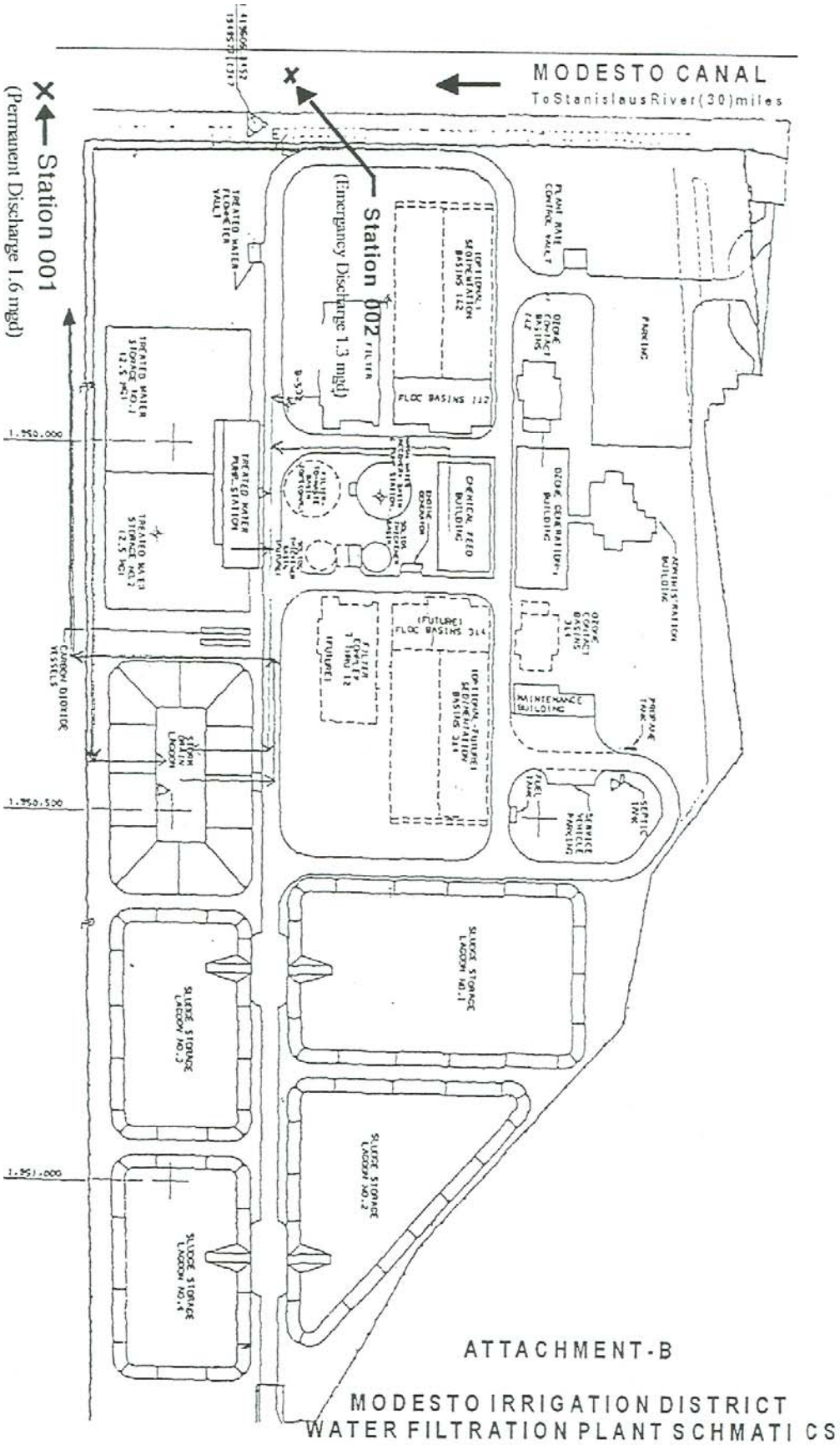
μ is the arithmetic mean of the observed values; and

n is the number of samples.

Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

ATTACHMENT B – MAP

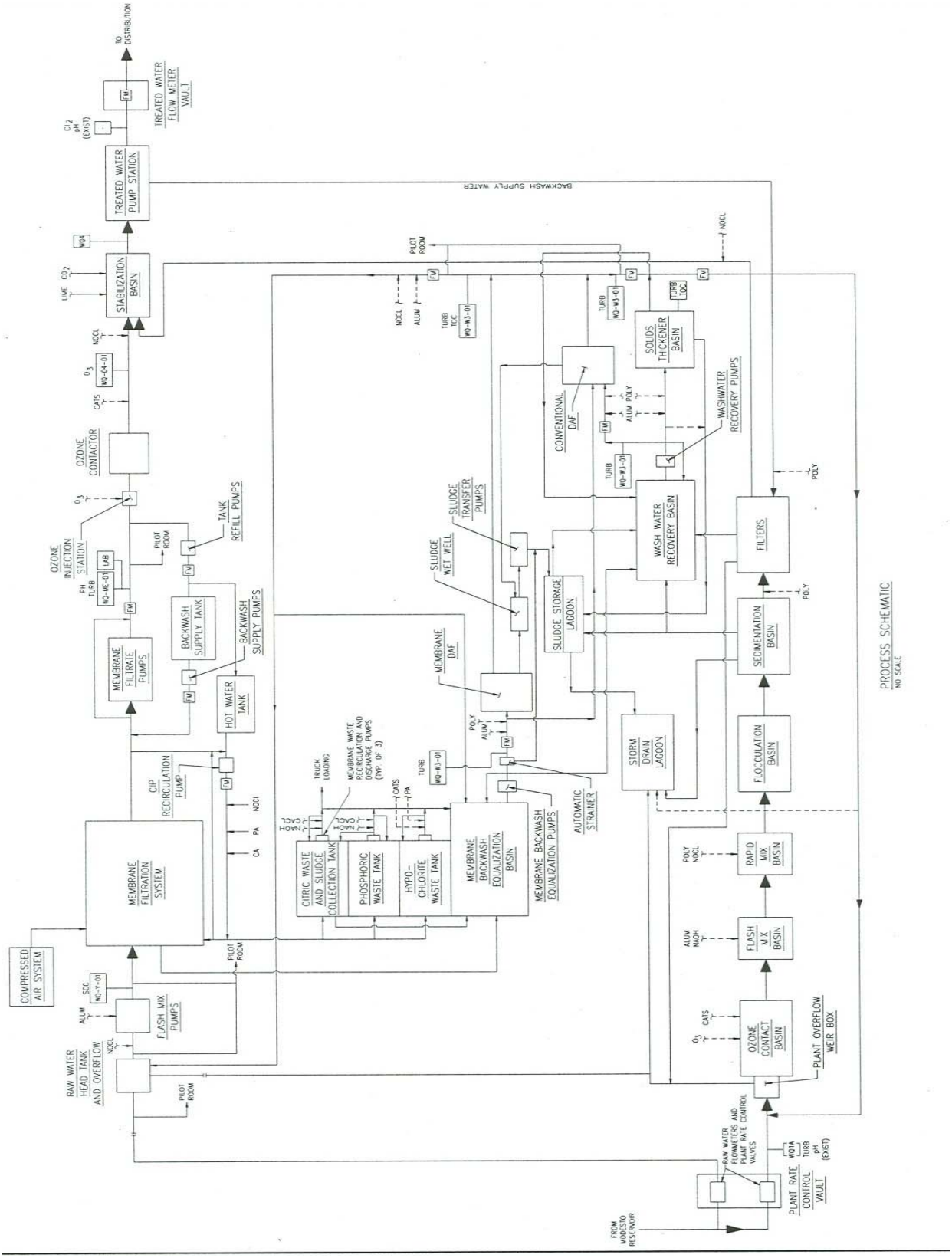




ATTACHMENT-B

MODESTO IRRIGATION DISTRICT
WATER FILTRATION PLANT SCHMATI CS

ATTACHMENT C – FLOW SCHEMATIC



ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

G. Bypass

1. Definitions

   a. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

   b. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

    a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

    c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

    a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)

    b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

    a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

    b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

    c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 C.F.R. § 122.42(a)(2)):

   a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

   b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

   d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted, provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
001	EFF-001	Storm Water Lagoon Effluent
002	EFF-002	Sedimentation Basin Effluent
	RSW-001	Modesto Irrigation District Main Canal approximately 300 feet upstream from Discharge Point 001
	RSW-002	Modesto Irrigation District Main Canal approximately 300 feet downstream from Discharge Point 001
	LND-001	Storm Water Lagoon

III. INFLUENT MONITORING REQUIREMENTS – NOT APPLICABLE

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001 and EFF-002

1. The Discharger shall monitor the sediment basin and storm water lagoon effluent at EFF-001 and EFF-002, respectively, as follows. Monitoring is only required during discharge events.

Table E-2. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency [1]	Required Analytical Test Method, (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Temperature	°F	Meter	1/Week	
pH	pH units	Grab	1/Week	
Total Suspended Solids	mg/L	Grab	1/Week	
Settleable Solids	mL/L	Grab	1/Week	
Turbidity	NTU	Grab	1/Week	
Dissolved Oxygen	mg/L	Grab	1/Week	
Chlorine, Total Residual	mg/L	Grab	1/Week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	
Total Dissolved Solids	mg/L	Grab	1/ Week	
Aluminum, Total	µg/L	Grab	1/month	
Copper, Total	µg/L	Grab	1/month	
Manganese, Total	µg/L	Grab	1/month	
Hardness	mg/L	Grab	1/month	

Parameter	Units	Sample Type	Minimum Sampling Frequency [1]	Required Analytical Test Method, (Minimum Level, units), respectively
Standard Minerals[2]	mg/L	Grab	1/year	
Priority Pollutants[3,4]	µg/L	Grab	1/Permit Cycle	

[1] If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all constituents listed above, except for Standard Minerals and Priority Pollutants, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

[2] Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

[3] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

[4] Concurrent with receiving surface water sampling.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* –the Discharger shall perform quarterly acute toxicity testing. Toxicity testing is only required during quarters within which discharge has occurred.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be and shall be representative of the quality of the discharge. The effluent samples shall be taken at the effluent monitoring location.

3. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

4. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. **Chronic Toxicity Testing**. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* – the Discharger shall perform three species chronic toxicity testing annually.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g. reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

   - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
   - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
   - The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using the dilution series identified in Table E-5, below. The receiving water control shall be used as the diluent (unless the receiving water is toxic).

8. *Test Failure* –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions VI. 2.a.iii.

Table E-3. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

C. **WET Testing Notification Requirements**. The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. **WET Testing Reporting Requirements**. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:
   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.
   b. The statistical methods used to calculate endpoints;
   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
   d. The dates of sample collection and initiation of each toxicity test; and
   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE.
2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes (If applicable):

a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

A. Monitoring Location – LND 001

1. The Discharger shall monitor the Storm Water Lagoon at LND-001 as follows:

Table E-4. Land Discharge Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/week	
pH	Standard Units	Grab	1/week	
Freeboard	feet	Measurement	1/week	

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location – RW-001 and RW-002

1. The Discharger shall monitor the Modesto Irrigation District Main Canal at RW-001 and RW-002 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Week	
Flow	ft^3/sec	Meter	1/Week[1]	
pH	Standard Units	Grab	1/Week	
Temperature	°F (°C)	Grab	1/Week	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/Week	
Turbidity	NTU	Grab	1/Week	

[1] Flow shall be measured weekly during periods when canal flows are less than 5cfs. Flows shall be measured or estimated when canal flows are greater than 5cfs.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions, throughout the reach bounded by Stations R-l, and R-2, R-3, and R-4. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

IX. OTHER MONITORING REQUIREMENTS – Not Applicable

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.

5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

6. **Multiple Sample Data.** When determining compliance with an AMEL , AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month and monthly averages shall be determined and recorded as needed to demonstrate compliance.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

   Regional Water Quality Control Board
   Central Valley Region
   11020 Sun Center Dr., Suite #200
   Rancho Cordova, CA 95670-6114

8. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	**First day of discharge to Canal**	**Throughout discharge event**	**First day of second calendar month**

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
			following sampling
1/week	**First day of discharge to Canal**	**Sunday through Saturday**	**First day of second calendar month following sampling**
1/month	**First day of calendar month following permit effective date or on permit effective date if that date is first day of the month**	**1st day of calendar month through last day of calendar month**	**First day of second calendar month following sampling**
1/quarter	**Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date**	**January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31**	**May 1 August 1 November 1 February 1**
1/year	**January 1 following (or on) permit effective date**	**January 1 through December 31**	**February 1**
1 / 5 years	**Permit effective date**	**During third year of permit**	**Submit with monthly SMR**

C. Discharge Monitoring Reports (DMRs) – Not applicable

D. Other Reports

1. **Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-7. Reporting Requirements for Special Provisions Progress Reports

Special Provision	Reporting Requirements
Compliance Schedules for Final Effluent Limitations for aluminum and copper, compliance with final effluent limitations.	**June 1**, annually, until final compliance
Compliance Schedules for Final Effluent Limitations for aluminum and copper, Pollution Prevention Plan	**June 1**, annually, after approval of work plan until final compliance
Compliance Schedules for Final Effluent Limitations for aluminum and copper, Treatment Feasibility Study	**June 1**, annually, after approval of work plan until final compliance

2. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR

constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

3. **Annual Operations Report**. By **January 30** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

   a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

   b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

   c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the water treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	
Discharger	Modesto Irrigation District
Name of Facility	Modesto Regional Water Treatment Plant
Facility Address	1008 Reservoir Rd.
	Waterford, CA 95386
	Stanislaus County
Facility Contact, Title and Phone	Claudia Hidahl, Water Quality Supervisor, (209) 526-7608
Authorized Person to Sign and Submit Reports	Patrick Ryan, Plant Manager, (209) 526-7608
Mailing Address	P.O Box 4060 Modesto, CA 95352
Billing Address	P.O Box 4060 Modesto, CA 95352
Type of Facility	Municipal Water Treatment Plant
Major or Minor Facility	Minor
Threat to Water Quality	Category III
Complexity	Category C
Pretreatment Program	N
Reclamation Requirements	None
Facility Permitted Flow	2.9 million gallons per day
Facility Design Flow	2.9 million gallons per day
Watershed	San Joaquin
Receiving Water	Modesto Irrigation District Main Canal
Receiving Water Type	Inland surface water

A. Modesto Irrigation District (hereinafter Discharger) is the owner and operator of Modesto Regional Water Treatment Plant (hereinafter Facility), a municipal water treatment plant.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to the Modesto Irrigation District Main Canal, which has hydraulic continuity with the Stanislaus River, a water of the United States, and is currently regulated by Order R5-2002-0027 which was adopted on March 1, 2002 and expired on March 1, 2007**:** The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on June 13, 2006. Supplemental information was requested and received on February 20, 2007**.** The application included a complete characterization of the effluent, including all priority pollutant constituents. A site visit was conducted on January 29, 2007 to observe operations and to familiarize permitting staff with the Facility.

II. FACILITY DESCRIPTION

The Discharger operates a 45 million gallons per day water treatment plant, supplying drinking water to the City of Modesto. The plant is located near the City of Waterford, approximately 15 miles east of Modesto on property owned by the Discharger. Water to the plant is supplied by the Modesto Reservoir. The water treatment plant design daily average discharge flow capacity is 2.9 mgd.

The currently operating water treatment facility is equipped with ozone as its primary disinfectant, deep bed mono media filtration, residual disinfection with sodium hypochlorite, and stabilization with lime, carbon dioxide, and sodium hydroxide. The plant operates primarily in full conventional mode, utilizing coagulation, flocculation, sedimentation, and filtration. The plant may at times be operated in the direct filtration mode, omitting the sedimentation process, if conditions allow and it is deemed by staff to be beneficial.

In order to ensure consistent reliable operation, the plant has been equipped with alternate standby equipment for major processes including filter backwash equipment, polymer feed pumps, ozone generators and related ozone generating equipment, plant service pumps, and treated water delivery pumps. In the event of a power failure, all electrically operated valves at the plant can be operated manually and if the Supervisory Control and Data Acquisition (SCADA) were to fail, the plant could be operated manually. In addition to this, the plant has the feature of two operating trains

to allow partial operation in the event of emergencies or preventative maintenance. In the event of a major emergency that results in the filtration plant being unable to deliver water to the City, the City could possibly rely on their well system.

The MRWTP is in the design phase of a plant expansion to increase the drinking water production capacity to 72 million gallons per day using submerged membranes. Construction is expected to begin by September 2007 with completion by March 2010. The Membrane Filtration System will consist of 6 tanks containing submerged PVDF membranes with a nominal pore size of 0.1 microns. Two Dissolved Air Flotation (DAF) treatment units will also be added, one will treat the membrane backwash and Clean in Place (CIP) process waste from the new addition to the plant, and the other will treat backwash water from the conventional treatment plant.

A. Description of Wastewater and Solids Treatment or Controls

Treatment is currently accomplished by drawing raw water from the reservoir, which is initially treated with ozone for primary disinfection prior to being directed to the rapid mix basin where aluminum sulfate (alum), used as the primary coagulant, and polymer are added. The water is then directed to two flocculation basins. Effluent from the flocculation basins is then directed to sedimentation basins. The residual solids from the sedimentation basins are discharged to sludge storage lagoons on site and eventually removed for transport offsite. Following the sedimentation basins, the water is directed to anthracite coal filters for suspended solids removal prior to being disinfected with sodium hypochlorite and stabilized for pH control with lime, carbon dioxide, and sodium hydroxide and discharged into City of Modesto water supply system.

Normal flows into the Storm Lagoon consist of storm water runoff, water from on-line monitoring equipment, water from the conventional pilot plant and filter backwash from the Wash Water Recovery Basin, wash water from the sedimentation basin and wash water from hosing buildings and appurtenances and process overflows. Storm water lagoon overflows are discharged to the Canal about two or three times per month on an intermittent basis. With all pumps in the lagoon running, the maximum discharge rate is estimated at 1.6 mgd, with the flow volume varying between 0.2 and 1.6 million gallons with an average of 1.0 million gallons. On rare occasions, during summer months, discharges from the sedimentation basins directly to the Canal may occur only when irrigation water is in the Canal. The discharge from these basins is limited by its pumping capacity to 1.3 mgd maximum. The plant flow schematics are shown on Attachment B. Solids removed from both the sedimentation basin and the filter backwashes are pumped to an on-site concrete lined sludge storage lagoon for dewatering before its final disposal off-site. The location of the solids disposal operation is shown on Attachment A. The solids are removed by Synagro West, Inc. and taken to Forward Inc., a Class II landfill located in San Joaquin County that is managed by Allied Waste.

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 20 & 29, T3S, R12E, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order. The facility is located in Hydrologic Sub-basin 522-02 in the San Joaquin River Watershed.

2. Treated filter backwash and other waste water from plant operations is discharged at Discharge Point 001 to Modesto Irrigation District Main Canal, a water of the United States at a point Latitude 37.°, 39', 13" N and longitude 120°, 40', 21" W. Effluent from the sedimentation basin is, on rare occasions, discharged directly to the canal at Discharge Point 002, located 500 feet upstream from Discharge Point 001.

3. The majority of Canal water is utilized for agricultural irrigation. The origin of the receiving water in the Canal is Modesto Reservoir, which is also the source of the influent water for the water treatment plant. The Canal empties approximately 30 miles downstream from the Main Canal and two laterals into the Stanislaus, San Joaquin, and Tuolumne Rivers during the irrigation season, from March to October, and during storm events that are accompanied by greater than average run-off.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations/Discharge Specifications contained in the existing Order for discharges from the Storm Water Lagoon (Monitoring Location EFF-001) and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

	2003	2004	2005	2006[1]	Effluent Limitation
Flow (mgd)					
Monthly average (based on discharging 30 days/month)	0.048	0.041	0.036	0.080	1.0
Daily maximum	1.333	0.784	1.10	0.984	2.9
pH Range					
Daily Max.	9.6	8.1	7.5	8.4	8.5
Daily Min.	6.9	7.0	6.7	6.6	6.5
Turbidity					
Monthly Avg.	5.5	5.6	6.6	5.0	N/a
Daily Max	14.2	26.1	14.7	14.2	N/a
Total Suspended Solids (mg/L)					
Monthly Avg.	16.1	11.8	11.8	6.5	30.0
Daily Max.	120.0[2]	34.0	34.0	17.9	50.0
Set. Solids (ml/L)					
Monthly Avg.	0.3[2]	<0.1	<0.1	<0.1	0.1
Daily Max.	2.7[2]	<0.1	0.3	<0.1	0.5
Total Dissolved Solid (mg/L)					
Monthly Avg.	37.6	34.0	34.9	35.1	N/a
Daily Max.	62.5	44.4	51.4	40.0	N/a

[1] Data based on reporting through October 2006.
[2] Discharger reported that high values were due to failure to flush line prior to sample collection

D. Compliance Summary

Monitoring data submitted by the Discharger from May 2001 through October 2006 revealed three events during which exceedance of effluent limitations contained in the previous Order No. R5-2002-0027 was recorded. On 8 October 2003 and10 October 2003, the pH in the effluent measured 9.6 and 9.1, respectively, which exceeds the effluent limitation of 8.5. On both occasions the operator stopped the discharge after confirming the high pH values in the storm water lagoon, and measures were taken to reduce the pH. On 16 November 2006, Total Suspended Solids and Settleable Solids were measured at 120.0 mg/L and 2.7 ml/L respectively, which exceeded daily maximum effluent limitations of 50.0 mg/L and 2.7 ml/L respectively. The Discharger attributed this excursion to operator error when effluent lines were not flushed properly prior to discharge.

E. Planned Changes

The MRWTP is in the design phase of a plant expansion to increase the drinking water production capacity to 72 million gallons per day using submerged membranes. A schematic that shows the process flow for the membrane treatment plant is provided in Attachment C. Construction of the plant addition is scheduled to begin in September 2007 and should become operational in March 2010.

With the completion of the planned plant expansion, the treatment process will include continuation of the existing plant operations together with the addition of the membrane filtration facility to augment the treatment capacity of the plant. The treatment process to be utilized by the new addition involves treatment of raw water with sodium hypochlorite to precipitate dissolved iron when the concentration exceeds 0.3 mg/L. Alum will be added, when necessary, to remove Total Organic Carbon (TOC) to reduce the potential for disinfection by-product formation. Water will then flow into the Membrane Filtration System and pass through the membranes, after which, it will be treated with ozone in the ozone contactor to achieve a 0.5 log removal credit for Giardia and 4 log removal credit for viruses. Any ozone residual remaining at the end of the contactor will be quenched with Calcium Thiosulfate. This filtered and disinfected water will be treated with sodium hypochlorite as a secondary disinfectant then blended with flow from the conventional treatment plant prior to entering the stabilization basins where it will have lime and CO2 added for corrosion control prior to entering the clear well.

Once the membranes are in service, a backwash will be performed in each tank approximately every 45 minutes to remove solids that accumulate on the outside of the membrane. Backwash water is directed into the Membrane Backwash Equalization Basin.

Approximately every 72 hours each membrane basin receives a Maintenance Wash. The maintenance wash may contain either 50-mg/L chlorine or 2000-mg/L phosphoric acid, or 100 mg/L sulfuric acid to reduce the accumulation of organic and/or inorganic

materials that are imbedded in the pores of the membranes. Water from the maintenance wash is directed into the Membrane Backwash Equalization Basin.

Approximately every 30-60 days the membranes in each of the filtration basins undergo a Clean In Place (CIP) process. After a backwash, chlorine is applied for a set period of time, which is then pumped to the Hypochlorite Waste Tank and immediately dechlorinated with calcium thiosulfate. The pH is then adjusted to less than 8.5 units with phosphoric acid, after which the solution is pumped into the Membrane Backwash Equalization Basin. After a rinse cycle, hot water is introduced into the same membrane filtration basin and a dose of 5000 mg/L phosphoric acid is added. This solution is once again re-circulated for a set period of time then pumped into the Phosphoric Acid Waste Tank, where it is immediately neutralized with 25% sodium hydroxide solution. A dose of Calcium Chloride is applied to precipitate phosphate ions from the solution. After settling, the supernatant is pumped into the Membrane Backwash Equalization Basin. The sludge is pumped to the Citric Acid Waste Tank where it is allowed to settle further with the liquid decanted back to the Phosphoric Acid Waste Tank. The sludge can be pumped to the lagoons for disposal at a landfill with alum sludge or may be directly hauled to an off site landfill.

All Backwashes, Maintenance Washes and Clean in Place treatments are staggered so there is an even time interval between each cleaning cycle and a relatively steady volume of liquid discharged into each of the waste tanks.

Approximately one to two times a year, the membranes will be treated with a special CIP cycle that will contain approximately 20000 mg/L Citric Acid. This solution will be neutralized to >5 pH and trucked to the City of Modesto Waste Water Treatment Plant, or similar facility for treatment under an industrial waste discharge permit.

A Dissolved Air Flotation (DAF) treatment unit using alum and CIBA Magnafloc LT25, or similar polymer, will treat all liquid and remove residual phosphate in the Membrane Backwash Equalization Basin prior to recycle to the head of the treatment plant. The treated water from the DAF will be dosed with alum and sodium hypochlorite, to oxidize any residual polymer, prior to being recycled to the head of the membrane treatment plant. The sludge from the DAF will be collected in the Sludge Wet Well prior to being pumped to the sludge lagoons. All return water from the sludge lagoons will flow to the conventional treatment plant's Wash Water Recovery Basin and recycled to the head of the conventional plant.

A second DAF unit will also be added during the plant expansion to treat backwash water from the conventional treatment plant prior to recycle. Water from the Membrane Backwash Equalization Basin may be diverted through the conventional DAF unit for treatment in order to perform maintenance on the membrane DAF unit. Under these circumstances, the Solid's Thickener Basin will be used for the conventional backwash water.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The Basin Plan at page II-2.00 states that: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning" and with respect to disposal of wastewaters states that "...*disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*" Existing and potential beneficial uses, which currently apply to surface waters of the basin, are presented in Figure II-1 and Table II-1 of the Basin Plan. The beneficial uses of the Modesto Irrigation District Main Canal are not individually identified in the Basin Plan, however the Canal is hydraulically connected to the Stanislaus River. Application of the tributary rule requires the beneficial uses of any specifically identified water body apply to its tributary streams. Although the tributary rule does not generally apply to manmade conveyances, upon review of the flow conditions, habitat values, and beneficial uses of the Canal, the Board finds that the beneficial uses identified in the Basin Plan for the Stanislaus River, are applicable to the Canal.

   The existing beneficial uses of the Stanislaus River, from Goodwin Dam to the San Joaquin River, as identified in Table II-1 of the Basin Plan include: agricultural supply (AGR) including both irrigation and stock watering; industrial process supply (PRO); industrial service supply (IND), hydropower generation (POW), body contact recreation, canoeing and rafting, (REC-1); and other non-body contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD), cold

habitat migration of aquatic organisms (MIGR) including salmon and steelhead, warm and cold habitat spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD). Municipal and domestic supply (MUN) is identified as a potential beneficial use.

The Board finds that the Beneficial Uses identified in the Basin Plan for the Stanislaus River are applicable to the Canal based upon the following facts:

a. Domestic Supply and Agricultural Supply

The State Water Resources Control Board (SWRCB) has issued water rights to existing water users of the Stanislaus, Tuolumne, and San Joaquin Rivers downstream of the discharge for domestic and irrigation uses. The main beneficial use of the Canal waters is for irrigation supply. The Canal is an ephemeral water body, fully charged in the irrigation season and containing little or no water during non-irrigation season. The Canal is concrete lined to minimize water losses. However, the Canal may likely provide minimal amounts of groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the Canal.

b. Water Contact and Non-contact Recreation and Aesthetic Enjoyment

The Board finds that the Canal flows through both rural and populated areas and that there is ready public access to the Canal. Exclusion of the public is unrealistic and, although not encouraged, potential for contact recreational activities exist along the Canal and downstream waters and these uses are likely to increase as the population in the area grows. Prior to discharge into the Stanislaus River, the Canal flows through areas of general public access, meadows, residential areas and parks, to the Stanislaus River. The Stanislaus River also offers recreational opportunities.

c. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream may percolate to groundwater. Since the Canal is at times dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and minor amounts of percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment

When water is present in the Canal, there is hydraulic continuity between the Canal and the Stanislaus River. During periods of hydraulic continuity, the Canal adds to the water quantity and may impact the quality of water flowing down

stream in the Stanislaus River.

e. Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources.

The Basin Plan (Table II-1) designates the Stanislaus, Tuolumne, and San Joaquin Rivers as having both a cold and warm freshwater beneficial uses which include: agricultural supply (AGR) including both irrigation and stock watering; industrial process supply (PRO); industrial service supply (IND), hydropower generation (POW), body contact recreation, canoeing and rafting, (REC-1); and other non-body contact recreation (REC-2); warm freshwater habitat (WARM);, warm habitat spawning, reproduction, and/or early development (SPWN); and wildlife habitat (WILD). Municipal and domestic supply (MUN) is identified as a potential beneficial use.

The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*" Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

2. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the

previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.

4. **Endangered Species Act***.* This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on CWA 303(d) List

Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "…*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*." The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" *The lower Stanislaus River is listed as a WQLS due to diazinon, Group A pesticides, mercury and unknown toxicity, however a TMDL has not been prepared for this segment of the river.*

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 CFR, § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, §122.44(d)(1)(vi),

further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives" \that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA's published water quality criteria, (2) a proposed state criterion (*i.e*., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR 122.44(d)(1)(vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4),

prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

B. Technology-Based Effluent Limitations

1. Scope and Authority

As specified in 40 CFR §122.44 (a)(1), technology-based effluent limitations (TBELs) shall be applicable when based on: effluent limitations and standards promulgated under section 301 of the CWA, new source performance standards promulgated under section 306 of CWA, effluent limitations determined on a case-by-case basis under section 402(a)(1) of CWA, or a combination of the three, in accordance with 40 CFR §125.3.

In cases where Effluent limitation Guidelines are not available for, or do not regulate, a particular pollutant of concern, Best Professional Judgment (BPJ) limits are established. BPJ-based limits are technology-based limits derived on a case-by-case basis for non-municipal (industrial) facilities. BPJ is defined as the highest quality technical opinion developed by a permit writer after consideration of all reasonably available and pertinent data or information that forms the basis for the terms and conditions of an NDPES permit. Permit limits are generally set at the upper bounds of acceptable performance.

2. Applicable Technology-Based Effluent Limitations

a. **Flow.** Order No. R5-2002-0027 established maximum daily discharge flow limitations of 2.9 mgd based on the maximum pump capacity for combined flow from the storm lagoon and sediment basin. This order continues the 2.9 maximum daily flow limitation for discharge to the Modesto Irrigation District Main Canal.

Mass-based effluent limitations, when necessary, were calculated by multiplying the concentration limitation by the reasonable measure of actual flow of the facility and the appropriate conversion factor. Unless otherwise noted, all mass limitations or mass emission rates (MERs) in this order were calculated by multiplying the concentration limitation by the monthly average or maximum daily flow and the appropriate conversion factor as follows:

MER = Concentration limitation x Flow x 8.34 (lb-L/mg-gal)

b. **Settleable Solids.** The Basin Plan includes a water quality objective that receiving waters not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. The previous Order No. R5-2002-0027 established effluent limitations for settleable solids. These effluent

limitations reflect removal efficiencies for properly designed, constructed and operated water treatment systems. Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order.

c. **Total Suspended Solids (TSS).** The Basin Plan includes a water quality objective that receiving waters not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. This Order contains average monthly and maximum daily effluent limits for TSS of 30 and 45 mg/L, respectively. The Regional Water Board has determined that TSS are more likely to be resuspended than settleable solids in the storm water lagoon, therefore, TSS concentrations are more likely to vary in the discharge than concentrations of settleable solids.

The Regional Water Board has relied on research performed for the USEPA in 1987 (SAIC, Model Permit Package for the Water Supply Industry, EPA Contract No. 68-01-7043). This study found that 76 percent of water treatment plants surveyed used sedimentation lagoons for filter backwash treatment. In these facilities, limitations of 30 mg/L and 45 mg/L were representative of the, then, current permitting practices for average monthly and maximum daily TSS limitations, respectively. Analysis of actual monitoring data from these facilities showed the 95th percent occurrence (monthly average) and 99th percent occurrence (maximum daily) levels of treatment to be 28.1 mg/L and 44.4 mg/L respectively. The study recommended TSS limitations of 30 mg/L and 45 mg/L as the monthly average and maximum daily discharge. Monitoring data provided by the Discharger included in this Fact Sheet indicates, with a single exception, that the Discharger has been in compliance with the effluent limits recommended by the study.

Summary of Technology-based Effluent Limitations
Discharge Points EFF-001 and EFF 002

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	30		45		
	lbs/day	250		1086		
Settleable Solids	ml/L	0.1		0.5		
Flow	mgd	1.0		2.9		

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above

any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water.** The receiving water is the Modesto Irrigation District Main Canal, which is hydraulically connected to the Stanislaus River. Beneficial uses of the Canal, as described in Section III, are: municipal and domestic supply; agricultural supply, including stock watering; hydropower generation; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; commercial and sport fishing; warm freshwater habitat; cold freshwater habitat; and wildlife habitat.

b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, effluent limitations for certain metals. The *California Toxics Rule*, at (c)(4), states the following:

"Application of metals criteria. (i) *For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/L or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations*." [emphasis added]

The State Water Board, in footnote 19 to Water Quality Order No. 2004-0013, stated: "*We note that…the Regional Water Board…applied a variable hardness value whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Water Board establish either fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than 'floating' effluent limitations*."

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. For purposes of establishing water quality-based effluent limitations, the lowest reported hardness value for the effluent stream of 30 mg/L as $CaCO_3$ was used.

c. **Assimilative Capacity/Mixing Zone.** There are no provisions included here for a mixing zone since at times there is no flow in the canal. Similarly, based on the available information, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero

assimilative capacity within the receiving water is that discharge limitations are end-of-pipe limits with no allowance for dilution within the receiving water. This Order does not provide any dilution credits from receiving water for its assimilative capacity for the constituents identified in the effluent limitations because at times there is no flow in the canal.

3. Determining the Need for WQBELs

a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*" in Title 22 of CCR. The narrative tastes and odors objective states: "*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*"

b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, copper, manganese, chlorine residual, and pH. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Attachment G and a detailed discussion of the RPA for each constituent is provided below.

c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.[1] The SIP states in the introduction "*The goal of this Policy is to establish a standardized approach*

[1] See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency." Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.

d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

e. **Aluminum.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 µg/L and 750 µg/L, respectively, for waters with a pH of 6.5 to 9.0. USEPA recommends that the ambient criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a low hardness—typically between 18 and 20 mg/L as $CaCO_3$. This condition is supportive of the applicability of the ambient water quality criteria for aluminum, according to USEPA's development document.

The MEC for aluminum was 230 µg/L, based on 2 samples collected between April 30, 2002 and July 1, 2002 while the maximum observed upstream receiving water aluminum concentration was 350 µg/L, based on 2 samples collected between April 30, 2002 and July 1, 2002. Therefore, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. Since the receiving water exceeds the chronic toxicity criteria, no assimilative capacity for aluminum is available and a dilution credit cannot be allowed. This Order contains final Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitations (MDEL) for aluminum of 74 µg/L and 149 µg/L, respectively, based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life (See Attachment F, Table F- 5 for WQBEL calculations).

In USEPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], USEPA states that "[a]*cid-soluble aluminum…is probably the best measurement at the present…*"; however, USEPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on USEPA's discussion of aluminum analytical methods, this Order allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

Based on the sample results in the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes

the use of compliance schedules in NPDES permits for water quality objectives adopted after September 25, 1995 (See Basin Plan at page IV-16). The water quality-based effluent limitations for aluminum are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the aluminum effluent limitations is established in the Order. This compliance schedule is contingent upon the Discharger submitting a compliance schedule justification for aluminum **within 90 days of the effective date of this Order.**

An interim performance-based maximum daily effluent limitation of 715 μg/L has been established in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.3, and is in effect through July 31, 2012 As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final aluminum effluent limitations. In addition, the Discharger shall submit an engineering treatment feasibility study and prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3).

f. **Chlorine Residual.** The Discharger uses chlorine in the water treatment process, which is extremely toxic to aquatic organisms. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. These effluent limitations have been included in this order. Pending monitoring data that would suggest otherwise, it appears that the Discharger can immediately comply with these new effluent limitations for chlorine residual.

g. **Chloroform.** The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicological assumptions used by OEHHA and USEPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/L (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health

Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by USEPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters.

Chloroform was detected in effluent samples collected April 30, 2002 and July 1, 2002 at an MEC concentration of 5.8 µg/L. The equivalent concentration for the OEHHA cancer potency factor is 1.1 µg/L. No chloroform has been detected in the receiving water, there is no known intake structure for drinking water downstream from the discharge point and chloroform is a non-conservative pollutant. The discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the chemical constituents objective for MUN use by causing an exceedance of the USEPA primary MCL for total THMs.

h. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using the worst-case measured hardness from the effluent (30mg/L as $CaCO_3$) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum four-day average concentration) is 3.3 µg/L and the applicable acute criterion (maximum one-hour average concentration) is 4.5 µg/L, as total recoverable.

The MEC for total copper was 3.5 µg/L, based on 2 samples collected between April 30, 2002 and July 1, 2002, while the maximum observed upstream receiving water total copper concentration was 1.0 µg/L, based on 2 samples collected between April 30, 2002 and July 1, 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. No dilution is allowed due to periods of no flow in the receiving water. An AMEL and MDEL for total copper of 2.2 µg/L and 4.5 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (See Attachment F, Table F-6 for WQBEL calculations). The Discharger is unable to comply with these limitations. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.D.1., an interim performance-based maximum daily limitation of 11 µg/L was calculated.

Section 2.1 of the SIP provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR*

criterion, the RWQCB may establish a compliance schedule in an NPDES permit." Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: …"*(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable*." This compliance schedule is contingent upon the Discharger submitting a compliance schedule justification for copper **within 90 days of the effective date of this Order**. The new water quality-based effluent limitations for copper become effective on **May 18, 2010**.

This Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final copper effluent limitations. The interim effluent limitations are in effect through **May 17, 2010**. As part of the compliance schedule for copper, the Discharger shall develop a pollution prevention program in compliance with CWC section 13263.3(d)(3) and submit an engineering treatment feasibility study.

i. **Electrical Conductivity. (see Subsection l. Salinity)**

j. **Manganese.** The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. The MEC for manganese was 94 µg/L, based on 2 samples collected between April 2002 and July 2002, while the maximum observed upstream receiving water manganese concentration was 6 µg/L, based on 2 samples collected between April 2002 and July 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for manganese. No dilution is allowed due to periods of no flow in the receiving water, therefore no assimilative capacity is available in the receiving water for manganese. An annual average effluent limitation of 50 µg/L for manganese is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective.

Based on the sample results in the effluent, the limitations appear to put the Discharger in immediate non-compliance. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. Furthermore, the effluent limitations for manganese are a new regulatory requirement within this permit, which becomes applicable to the waste discharge with the adoption of this Order, which was adopted after July 1, 2000. Therefore, a compliance time schedule for compliance with the manganese effluent limitations is established in TSO No. R5-XXXX-____ in accordance with CWC section 13300, that requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

k. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.

l. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, Sulfate, and Chloride. The water quality objectives for these constituents together with the concentrations measured in the effluent are given in Table F-4.

Table F-4. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Avg	Max
EC (µmhos/cm)	700[2]	900, 1600, 2200	80	80
TDS (mg/L)	450[2]	500, 1000, 1500	35.4	62.5
Sulfate (mg/L)	N/A	250, 500, 600	2.9	3.7
Chloride (mg/L)	106[2]	250, 500, 600	6.5	7.0

1. Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)
2. Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.
3. The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

Chloride concentrations in the effluent ranged from 6 mg/L to 7 mg/L, with an average of 6.5 mg/L, for 2 samples collected by the Discharger in April 2002 and July 2002. Background concentrations in the receiving water ranged

from 3 mg/L to 5 mg/L, with an average of 4 mg/L, for 2 samples collected by the Discharger in April 2002 and July 2002. Neither the receiving water nor the effluent exceeds the agricultural water quality goal of 106 mg/L.

ii. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1,600 µmhos/cm as an upper level, and 2,200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield (i.e., a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries). These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average EC effluent concentration was 80 µmhos/cm in 2 samples collected by the Discharger in April 2002 and July 2002. These concentrations do not exceed the applicable water quality objectives. The background receiving water EC was 40 µmhos/cm in two samples collected in April 2002 and July 2002.

iii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 2.1 mg/L to 3.7 mg/L, with an average of 2.9 mg/L, for 2 samples collected by the Discharger in April 2002 and July 2002. Background concentrations in Modesto Irrigation District Main Canal ranged from 1.5 mg/L to 4.0 mg/L, with an average of 2.75 mg/L, for 2 samples collected by the Discharger in April 2002 and July 2002. The effluent does exceed not the secondary MCL recommended level of 250 mg/L.

iv. **Total Dissolved Solids (TDS)**. The secondary MCL for TDS is 500 mg/L as a recommended level, 1,000 mg/L as an upper level, and 1,500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e., a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation

water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS combined discharge effluent concentration was 50 mg/L and did not vary between the 2 samples collected by the Discharger in April 2002 and July 2002. These concentrations do not exceed the applicable water quality objectives. The background receiving water EC averaged 40 µmhos/cm for two samples collected at the same time as the effluent samples, and also did not vary between the two samples.

v. **Salinity Effluent Limitations.** Based on the sample results of the effluent, there is no reasonable potential for the effluent to exceed the water quality goals in the Basin plan, therefore no effluent limitations for salinity are included in this Order. Allowing the Discharger to increase its current salt loading may be contrary to the Region wide effort to address salinity in the Central Valley and Resolution 68-16, which requires that existing high quality waters be maintained until it has been demonstrated that any change will be consistent with the maximum benefit to the people of the State. Therefore, the permit requires salinity monitoring of the discharge to verify that salinity is not increasing and requires the development of a salt evaluation and minimization plan to address sources of salinity in the discharge.

m. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

4. WQBEL Calculations

a. Effluent limitations for aluminum and copper were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.

b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\underbrace{M_A ECA_{acute}}_{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for aluminum and copper as follows in Tables F-5 and F-6, below.

Table F-5 WQBEL Calculations for Aluminium

	Acute	Chronic
Criteria (µg/L) [1]	750	87
Dilution Credit	No Dilution	No Dilution
ECA	750	87
ECA Multiplier	0.32	0.53
LTA	250.8	47.8
AMEL Multiplier (95th%)	-2	1.6
AMEL (µg/L)	-2	**74**
MDEL Multiplier (99th%)	-2	3.1
MDEL (µg/L)	-2	**149**

[1] USEPA Ambient Water Quality Criteria

(2) Limitations based on chronic LTA (Chronic LTA < Acute LTA)

Table F-6 WQBEL Calculations for Copper

	Acute	Chronic
Criteria, dissolved (µg/L) (1)	4.32	3.20
Dilution Credit	No Dilution	No Dilution
Translator (2)	0.96	0.96
ECA, total recoverable (3)	4.5	3.3
ECA Multiplier (4)	0.32	0.53
LTA	1.4	1.8
AMEL Multiplier (95th%) (5)(6)	1.6	(8)
AMEL (µg/L)	**2.2**	(8)
MDEL Multiplier (99th%) (7)	3.1	(8)
MDEL (µg/L)	**4.5**()	(8)

(1) CTR aquatic life criteria, based on a hardness of 30 mg/L as $CaCO_3$.
(2) EPA Translator used as default.
(3) ECA calculated per section 1.4.B, Step 2 of SIP. This allows for the consideration of dilution.
(4) Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
(5) Assumes sampling frequency n=>4.
(6) The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(7) The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
(8) Limitations based on acute LTA (Acute LTA < Chronic LTA)

Summary of Water Quality-based Effluent Limitations Discharge Points 001 and 002

Table F-7. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum	µg/L	74		149		
Copper	µg/L	2.2		4.5		
Chlorine Residual	mg/L	0.01		0.02		
pH	pH units				6.5	8.5

Manganese. The annual average effluent concentration of manganese shall not exceed 50 µg/L.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant,*

animal, or aquatic life." (Basin Plan at III-8.00). The Basin Plan also states that "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate*…". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."* Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

> **Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
>
> | | |
> |---|---|
> | Minimum for any one bioassays ---------- | 70% |
> | Median for any three or more consecutive bioassays --------- | 90% |

b. **Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00).

Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region[2] that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012*, "In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is

[2] In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger is not an effluent limitation, it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations.

Title 40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g. CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated by multiplying the concentration limitation by the Facility's average monthly and maximum daily flow limitations and the appropriate unit conversion factor. Unless otherwise noted, all mass limitations or mass emission rates (MERs) in this Order were calculated using the reasonable measure of actual flow.

2. Averaging Periods for Effluent Limitations.

Title 40 CFR 122.45 (d) requires that all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as maximum daily and average monthly discharge

limitations for all dischargers other than publicly owned treatment works (POTW). The Facility is not a POTW, therefore, these regulations are applicable.

3. Satisfaction of Anti-Backsliding Requirements.

All effluent limitations and requirements in this Order are at least as stringent as the previous Order.

4. Satisfaction of Antidegradation Policy

This Order does not allow for an increase in the mass of pollutants to be discharged. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

Summary of Final Effluent Limitations
Discharge Point 001 and 002

Table F-8. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Total Suspended Solids	mg/L	30		45		
	lbs/day[1]	250		1086		
Settleable Solids	ml/L	0.1		0.5		
Aluminum	µg/L	74		149		
Copper	µg/L	2.2		4.5		
Residual Chlorine	mg/L	0.01		0.02		
pH	pH units				6.5	8.5

[1] Based on design flow of 1.0 mgd (average monthly) and 2.9 mgd (daily maximum)

a. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

i. 70%, minimum for any one bioassay; and
ii. 90%, median for any three consecutive bioassays.

b. **Average Monthly Discharge Flow.** The Average Monthly Discharge Flow shall not exceed 1.0 mgd.

c. **Average Daily Discharge Flow.** The Average Daily Discharge Flow shall not exceed 2.9 mgd.

d. **Manganese.** The annual average effluent concentration of manganese shall not exceed 50 µg/L.

E. Interim Effluent Limitations

1. **Aluminum and copper** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

   The interim limitations for aluminum and copper in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

   When there are less than ten sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

   The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

   Table 6 summarizes the calculations of the interim effluent limitations for aluminum, and copper.

Table F-9. Interim Effluent Limitation Calculation Summary

Parameter	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Aluminum	230	160	99	2	715
Copper	3.5	3.5	0	2	11

F. Land Discharge Specifications –Storm water Lagoon

1. The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater and ensure the treatment shall not create a nuisance as defined in Section 13050 of the California Water Code.

2. A land discharge specification that requires 2 feet of freeboard be maintained in storm water lagoon containing wastewater is established to prevent unauthorized discharges to waters of the United States or waters of the State.

3. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas *(or property owned by the Discharger)*.

4. The storm water lagoon shall be managed to prevent breeding of mosquitoes to protect human health and prevent a nuisance condition. Dead algae, vegetation, and debris create a large amount of organic material. Bacteria and fungi use oxygen to break down this organic material and cause the biochemical oxygen demand within the system to increase thus, lowers the availability of dissolved oxygen in the water. Dead algae, vegetation, and debris shall not accumulate on the water surface to minimize objectionable odor and maintain dissolved oxygen levels

5. As a means of discerning compliance with Land Discharge Specification 3, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the storm water lagoon shall not be less than 1.0 mg/L.

Table F-8. Land Discharge Specifications

Parameter	Units	Discharge Specifications			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	pH units			6.5	8.5
Freeboard	feet			2.0	

G. Reclamation Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that

surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses*." The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

   Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

   a. **Biostimulatory Substances**. The Basin Plan includes a water quality objective that "*[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.

   b. **Color**. The Basin Plan includes a water quality objective that "*[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.

   c. **Chemical Constituents**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain chemical constituents in concentrations that adversely*

affect beneficial uses." Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.

d. **Dissolved Oxygen.** The Stanislaus River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Stanislaus River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

   For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.*" This objective was included as a receiving water limitation in this Order.

e. **Floating Material**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.

f. **Oil and Grease**. The Basin Plan includes a water quality objective that *"[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

g. **pH.** The Basin Plan includes water quality objective that *"[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses*". This Order includes receiving water limitations for both pH range and pH change.

   The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

h. **Pesticides**. The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.

i. **Radioactivity**. The Basin Plan includes a water quality objective that *"[R]adionuclides shall not be present in concentrations that are harmful to*

human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life." The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations…"* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.

j. **Sediment.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses"* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.

k. **Settleable Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.

l. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.

m. **Taste and Odors**. The Basin Plan includes a water quality objective that *"[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.

n. **Temperature.** The Modesto Irrigation District Main Canal has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." This Order includes a receiving water limitation based on this objective.

o. **Toxicity**. The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.

p. **Turbidity.** The Basin Plan includes a water quality objective that "*[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent*."

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

B. Groundwater – Not Applicable

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

1. **Monitoring Requirements.** Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water.

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

2. Groundwater

a. All of the land discharge of wastewater generated during the treatment process is disposed into either cement-lined or Hypalon-lined ponds and basins. Residual solids are also stored in lined basins prior to removal from the site. For this reason, there is no reasonable expectation that activities at the treatment plant will impact groundwater quality; therefore no groundwater monitoring is included in this Order.

E. Other Monitoring Requirements – Not Applicable

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Pollution Prevention.** This Order requires the Discharger prepare pollution prevention plans following CWC section 13263.3(d)(3) for copper, manganese and aluminum. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and

requirements for these constituents based on a review of the pollution prevention plans.

b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for aluminum, copper and manganese. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan at III-8.00.) Adequate WET data is not available to determine if the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective. Attachment E of this Order requires Quarterly chronic WET monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, this provision requires the Discharger to submit to the Regional Water Board an Initial Investigative TRE Work Plan for approval by the Executive Officer, to ensure the Discharger has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered in the future. The provision also includes a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity is demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of

accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every two weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F- 1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* (EPA/833B-99/002), August 1999.

- Generalized Methodology for Conducting Industrial TREs*, (EPA/600/2-88/070), April 1989.*

- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.

- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.

- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.

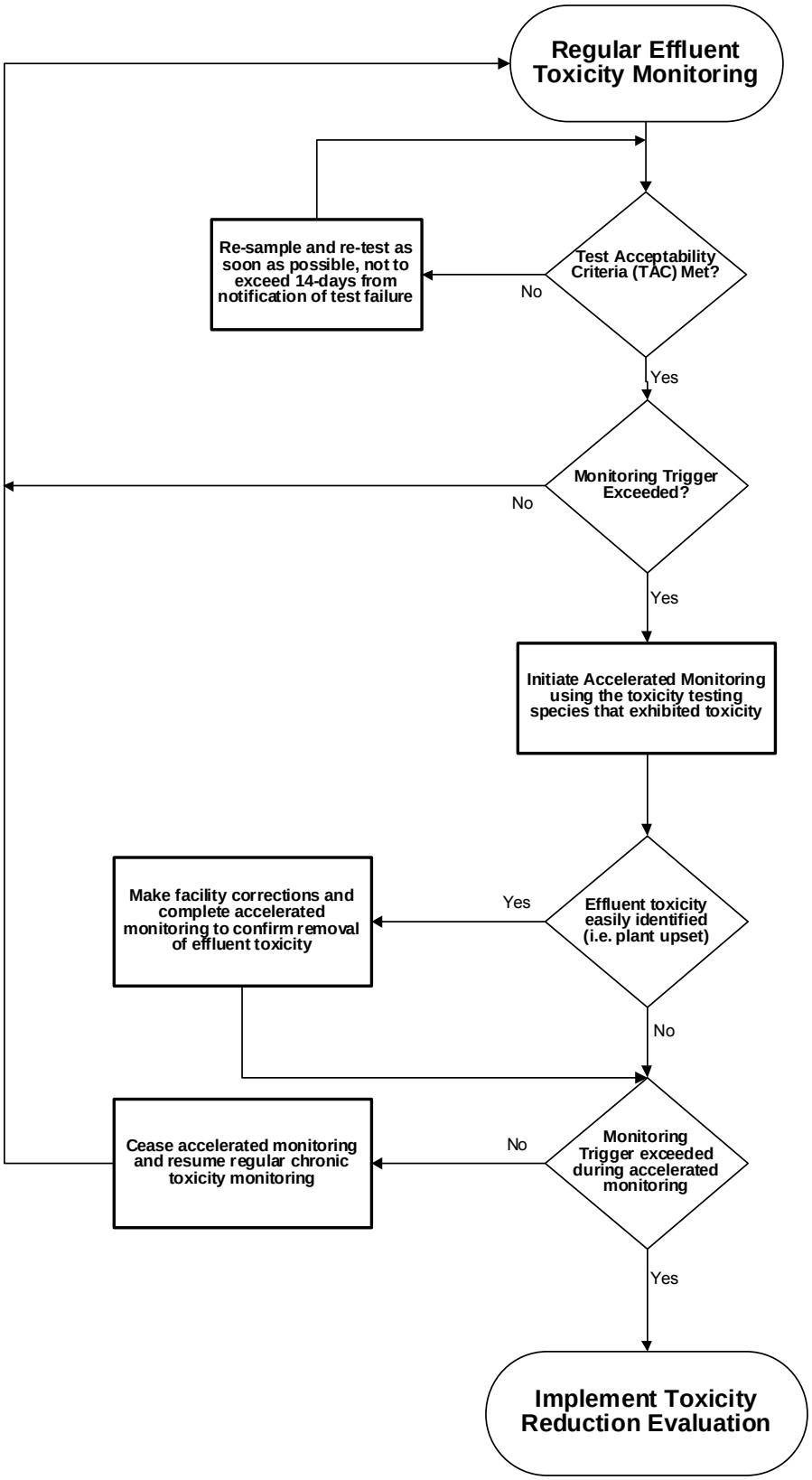
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.

- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.

- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.

- *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991*

Figure F-1
WET Accelerated Monitoring Flow Chart



3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan**. Due to ongoing concerns regarding salinity in the Central Valley, a salinity evaluation and minimization plan is required to address sources of salinity from the domestic water treatment system.

b. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for aluminum and copper shall, at minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:

i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.

ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.

iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.

iv. A plan for monitoring the results of the pollution prevention program.

v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.

vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.

vii. A description of the Discharger's existing pollution prevention programs.

viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.

ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.

4. Construction, Operation, and Maintenance Specifications – Not applicable

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Compliance Schedules

The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

a. The Discharger has not submitted a request, and justification for compliance schedules for aluminum and copper. Therefore, this Order requires the Discharger to submit an infeasibility analysis in accordance with Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Order establishes a compliance schedule for the new, final, water quality-based effluent limitations for aluminum and copper and requires full compliance by July 31, 2012 for aluminum and not later than 18 May 2010 for copper. However, these compliance schedules are contingent upon the submittal of acceptable infeasibility analyses within 90 days of the effective date of this Order.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Modesto Regional Water Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on July 6, 2007.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 3/4 August 2007
Time: 8:30 am
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/rwqcb5/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling Jennifer Watts at (916) 646-4795.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Jennifer Watts at (916) 464-4795.

ATTACHMENT G: REASONABLE POTENTIAL ANALYSIS

VOLATILE ORGANIC CONSTITUENTS

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
1,1-Dichloroethane	75343	28	< 0.50	< 0.50	5						5	No
1,1-Dichloroethene	75354	30	< 0.50	< 0.50	0.057			0.057	3.2			Inconclusive
1,1,1-Trichloroethane	71556	41	< 0.50	< 0.50	200						200	No
1,1,2-Trichloroethane	79005	42	< 0.50	< 0.50	0.6			0.6	42			No
1,1,2,2-Tetrachloroethane	79345	37	< 0.50	< 0.50	0.17			0.17	11			Inconclusive
1,2-Dichlorobenzene	95501	75	< 0.50	< 0.50	2700			2700	17000			No
1,2-Dichloroethane	107062	29	< 0.50	< 0.50	0.38			0.38	99			Inconclusive
cis-1,2-Dichloroethene	156592		< 0.50	< 0.50	6						6	No
1,2-Dichloropropane	78875	31	< 0.50	< 0.50	0.52			0.52	39			No
1,2,4-Trichlorobenzene	120821	101	< 0.50	< 0.50	70			260	940		70	No
1,3-Dichlorobenzene	541731	76	< 0.50	< 0.50	400			400	2600			No
1,3-Dichloropropylene	542756	32	< 0.50	< 0.50	3100			3100	29000			No
1,4-Dichlorobenzene	106467	77	< 0.50	< 0.50	5			400	2600		5	No
Acrolein	107028	17	< 5.00	< 5.00	320			320	780			No
Acrylonitrile	107131	18	< 2.00	< 2.00	0.059			0.059	0.66			Inconclusive
Benzene	71432	19	< 0.50	< 0.50	1			1.2	71		1	No
Bromoform	75252	20	< 0.50	< 0.50	4.3			4.3	360			No
Bromomethane	74839	34	< 0.50	< 0.50	48			48	4000			No
Carbon tetrachloride	56235	21	< 0.50	< 0.50	0.25			0.25	4.4			Inconclusive
Chlorobenzene (mono chlorobenzene)	108907	22	< 0.50	< 0.50	680			680	21000			No
Chloroethane	75003	24	< 0.50	< 0.50								No
2- Chloroethyl vinyl ether	110758	25	< 1.00	< 1.00								No
Chloroform	67663	26	5.80	< 0.50	80						80.0	No
Chloromethane	74873	35	< 0.50	< 0.50								No
Dibromochloromethane	124481	23	< 0.50	< 0.50	0.41			0.41	34			Inconclusive
Bromodichloromethane	75274	27	< 0.50	< 0.50	0.56			0.56	46			No
Dichloromethane	75092	36	< 0.50	< 0.50	4.7			4.7	1600			No

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
Ethylbenzene	100414	33	< 0.50	< 0.50	3100			3100	29000			No
Hexachlorobenzene	118741	88	< 1.00	< 1.00	0.00075			0.00075	0.00077			Inconclusive
Hexachlorobutadiene	87683	89	< 1.00	< 1.00	0.44			0.44	50			Inconclusive
Hexachloroethane	67721	91	< 1.00	< 1.00	1.9			1.9	8.9			No
Naphthalene	91203	94	< 0.20	< 0.20								No
Tetrachloroethene	127184	38	< 0.50	< 0.50	0.8			0.8	8.85			No
Toluene	108883	39	< 0.50	< 0.50	6800			6800	200000			No
trans-1,2-Dichloroethylene	156605	40	< 0.50	< 0.50	700			700	140000			No
Trichloroethene	79016	43	< 0.50	< 0.50	2.7			2.7	81			No
Vinyl chloride	75014	44	< 0.50	< 0.50	2			2	525			No
Methyl-tert-butyl ether (MTBE)	1634044		< 0.50	0.50J	5						5	No
Trichlorofluoromethane	75694		< 0.50	< 0.50								No
1,1,2-Trichloro-1,2,2-Trifluoroethane	76131		< 1.00	< 1.00								No
Styrene	100425		< 0.25	< 0.25								No
Xylenes	1330207		< 0.50	< 0.50								No

General Notes:

All units μg/L unless otherwise noted.

MEC = Projected Maximum Effluent Concentration (calculated using Table 3-1, TSD, for non-CTR, equals maximum observed effluent concentration for CTR)

B = Maximum Receiving Water Concentration

C = Criteria (Used for reasonable potential analysis)

CMC = Criterion Maximum Concentration (CTR criteria unless otherwise noted)

CCC = Criterion Contiuous Concentration (CTR criteria unless otherwise noted)

MCL = Drinking Water Standards Maximum Contaminant Levels

Basin Plan = Numeric Site-specific Basin Plan Objective

SEMI-VOLATILE ORGANIC CONSTITUENTS

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
1,2-Benzanthracene	56553	60	< 0.30	< 0.30	0.0044			0.0044	0.049			Inconclusive
1,2-Diphenylhydrazine	122667	85	< 1.00	< 1.00	0.04			0.04	0.54			Inconclusive
2-Chlorophenol	95578	45	< 2.00	< 2.00	120			120	400			No
2,4-Dichlorophenol	120832	46	< 0.30	< 0.30	93			93	790			No
2,4-Dimethylphenol	105679	47	< 2.00	< 2.00	540			540	2300			No

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
2,4-Dinitrophenol	51285	49	< 5.00	< 5.00	70			70	14000			No
2,4-Dinitrotoluene	121142	82	< 5.00	< 5.00	0.11			0.11	9.1			Inconclusive
2,4,6-Trichlorophenol	88062	55	< 5.00	< 5.00	2.1			2.1	6.5			Inconclusive
2,6-Dinitrotoluene	606202	83	< 5.00	< 5.00								No
2-Nitrophenol	2.5E+07	50	< 5.00	< 5.00								No
2-Chloronaphthalene	91587	71	< 5.00	< 5.00	1700			1700	4300			No
3,3'-Dichlorobenzidine	91941	78	< 0.30	< 0.30	0.04			0.04	0.077			Inconclusive
3,4-Benzofluoranthene	205992	62	< 0.30	< 0.30	0.0044			0.0044	0.049			Inconclusive
4-Chloro-3-methylphenol	59507	52	< 1.00	< 1.00								No
4,6-Dinitro-2-methylphenol	534521	48	< 5.00	< 5.00	13.4			13.4	765			No
4-Nitrophenol	100027	51	< 5.00	< 5.00								No
4-Bromophenyl phenyl ether	101553	69	< 5.00	< 5.00								No
4-Chlorophenyl phenyl ether	7005723	72	< 5.00	< 5.00								No
Acenaphthene	83329	56	< 0.30	< 0.30	1200			1200	2700			No
Acenaphthylene	208968	57	< 0.20	< 0.20								No
Anthracene	120127	58	< 0.30	< 0.30	9600			9600	110000			No
Benzidine	92875	59	< 5.00	< 5.00	0.00012			0.00012	0.00054			Inconclusive
Benzo(a)pyrene (3,4-Benzopyrene)	50328	61	< 0.10	< 0.10	0.0044			0.0044	0.049			Inconclusive
Benzo(g,h,i)perylene	191242	63	< 0.10	< 0.10								No
Benzo(k)fluoranthene	207089	64	< 0.30	< 0.30	0.0044			0.0044	0.049			Inconclusive
Bis(2-chloroethoxy) methane	111911	65	< 5.00	< 5.00								No
Bis(2-chloroethyl) ether	111444	66	< 1.00	< 1.00	0.031			0.031	1.4			Inconclusive
Bis(2-chloroisopropyl) ether	4E+07	67	< 2.00	< 2.00	1400			1400	170000			No
Bis(2-ethylhexyl) phthalate	117817	68	< 3.00	0.14J	1.8			1.8	5.9		4	Inconclusive
Butyl benzyl phthalate	85687	70	< 5.00	< 5.00	3000			3000	5200			No
Chrysene	218019	73	< 0.30	< 0.30	0.0044			0.0044	0.049			Inconclusive
Di-n-butylphthalate	84742	81	< 5.00	< 5.00	2700			2700	12000			No
Di-n-octylphthalate	117840	84	< 5.00	< 5.00								No
Dibenzo(a,h)-anthracene	53703	74	< 0.10	< 0.10	0.0044			0.0044	0.049			Inconclusive
Diethyl phthalate	84662	79	< 2.00	< 2.00	23000			23000	120000			No

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
Dimethyl phthalate	131113	80	< 2.00	< 2.00	313000			313000	2900000			No
Fluoranthene	206440	86	< 0.05	< 0.05	300			300	370			No
Fluorene	86737	87	< 0.10	< 0.10	1300			1300	14000			No
Hexachlorocyclopentadiene	77474	90	< 1.00	< 1.00	240			240	17000			No
Indeno(1,2,3-c,d)pyrene	193395	92	< 0.05	< 0.05	0.0044			0.0044	0.049			Inconclusive
Isophorone	78591	93	< 1.00	< 1.00	8.4			8.4	600			No
N-Nitrosodiphenylamine	86306	98	< 1.00	< 1.00								No
N-Nitrosodimethylamine	62759	96	< 5.00	< 5.00	0.00069			0.00069	8.1			Inconclusive
N-Nitrosodi-n-propylamine	621647	97	< 5.00	< 5.00	0.005			0.005	1.4			Inconclusive
Nitrobenzene	98953	95	< 1.00	< 1.00	17			17	1900			No
Pentachlorophenol	87865	53	< 5.00	< 5.00	0.28	19	15	0.28	8.2			Inconclusive
Phenanthrene	85018	99	< 0.05	< 0.05								No
Phenol	108952	54	< 1.00	< 1.00	21000			21000	4600000			No
Pyrene	129000	100	< 0.05	< 0.05	960			960	11000			No

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Basin Plan = Numeric Site-specific Basin Plan Objective

Design Hardness = 30 mg/L

INORGANIC CONSTITUENTS

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
Aluminum	7429905		230.00	350.00	87	750.0 (1)	87.0 (1)	600			200	Yes, MEC & B > C
Antimony	7440360	1	0.10	0.08J	6			14	4300		6	No
Arsenic	7440382	2	0.80	0.30	10	340.0	150.0			10	50	No

								Human Health Criteria				
Constituent	**CAS Number**	**CTR #**	**MEC**	**B**	**C**	**CMC**	**CCC**	**Water & Org**	**Org. Only**	**Basin Plan**	**MCL**	**Reasonable Potential?**
Asbestos	1332214	15	< 0.20 (3)	< 0.20 (3)	7.00 (3)						7.0 (2)	**No**
Barium	7440393		24.00	15.00	100					100	1000	**No**
Beryllium	7440417	3	< 0.20	< 0.20	4						4	**No**
Cadmium	7440439	4	< 0.10	< 0.10J	0.92	1.2 (2)	0.9 (2)				5	**No**
Chromium (III)					27.65	212.5 (2)	27.6 (2)					**No**
Chromium (VI)	1.9E+07	5b	< 0.20	< 0.20	11	16.0	11.0					**No**
Chromium (total)	7440473	5a	0.80	0.80	50						50	**No**
Copper	7440508	6	3.50	1.00	3.33	4.50 (2)	3.33 (2)			10	1300	**Yes, MEC > C**
Cyanide	57125	14	1.00	4.00	5.2	22.0	5.2			10	200	**No**
Fluoride	7782414		0.20	0.20	2000						2000	**No**
Iron	7439896		0.46	0.37	300		1000.0			300	300	**No**
Lead	7439921	7	0.28	0.24	0.66	17.04 (2)	0.66 (2)				15	**No**
Manganese	7439965		94.00	7.70	50			200		50	50	**Yes, MEC > C**
Mercury	7439976	8	0.0015	0.0011	0.05	1.4	0.8	0.05	0.051		2	**No**
Nickel	7440020	9	0.90	0.80	18.8	169.1 (2)	18.8 (2)	610			100	**No**
Selenium	7782492	10	< 1.00	< 1.00	50						50	**No**
Silver	7440224	11	0.09J	< 0.10	0.43	0.4 (2)				10	100	**No**
Thallium	7440280	12	0.05J	0.08J	1.7			1.7			2	**No**
Tributyltin	688733		< 0.004	< 0.004	0.072	0.42	0.072					**No**
Zinc	7440666	13	15.00	0.50J	42.25	42.2 (2)	42.6 (2)			100	5000	**No**

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Basin Plan = Numeric Site-specific Basin Plan Objective
(1) USEPA National Recommended Ambient Water Quality Criteria
(2) Calculated using an effluent hardness of 18 mg/L as CaCO3.
(3) Units in million fibers per liter (mfl)

PESTICIDES - PCBs

								Human Health Criteria				
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
4,4'-DDD	72548	110	< 0.01	< 0.01	0.00083			0.00083	0.00084			Inconclusive
4,4'-DDE	72559	109	< 0.01	< 0.01	0.00059			0.00059	0.00059			Inconclusive
4,4'-DDT	50293	108	< 0.01	< 0.01	0.00059	1.1	0.001	0.00059	0.00059			Inconclusive
alpha-Endosulfan	959988	112	< 0.01	< 0.01	0.0087	0.22	0.056	0.0087	110			Inconclusive
alpha-Hexachlorocyclohexane (BHC)	319846	103	< 0.01	< 0.01	0.0039			0.0039	0.013			Inconclusive
Alachlor	1.6E+07		< 0.05	< 0.05								No
Aldrin	309002	102	< 0.005	< 0.005	0.00013	3		0.00013	0.00014			Inconclusive
beta-Endosulfan	3.3E+07	113	< 0.01	< 0.01	0.056	0.22	0.056	110	240			No
beta-Hexachlorocyclohexane	319857	104	< 0.005	< 0.005	0.014			0.014	0.046			No
Chlordane	57749	107	< 0.02	< 0.02	0.00057	2.4	0.0043	0.00057	0.00059			Inconclusive
delta-Hexachlorocyclohexane	319868	106	< 0.005	< 0.005								No
Dieldrin	60571	111	< 0.01	< 0.01	0.00014	0.24	0.056	0.00014	0.00014			Inconclusive
Endosulfan sulfate	1031078	114	< 0.01	< 0.01	110			110	240			No
Endrin	72208	115	< 0.01	< 0.01	0.036	0.086	0.036	0.76	0.81			No
Endrin Aldehyde	7421934	116	< 0.01	< 0.01	0.76			0.76	0.81			No
Heptachlor	76448	117	< 0.01	< 0.01	0.00021	0.52	0.0038	0.00021	0.00021			Inconclusive
Heptachlor Epoxide	1024573	118	< 0.01	< 0.01	0.0001	0.52	0.0038	0.0001	0.00011			Inconclusive
Lindane (gamma-BHC)	58899	105	< 0.01	< 0.01	0.019	0.95		0.019	0.063			No
PCB-1016	1.3E+07	119	< 0.1	< 0.1	0.00017			0.00017	0.00017			Inconclusive
PCB-1221	1.1E+07	120	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
PCB-1232	1.1E+07	121	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
PCB-1242	5.3E+07	122	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
PCB-1248	1.3E+07	123	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
PCB-1260	1.1E+07	125	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
PCB-1254	1.1E+07	124	< 0.1	< 0.1	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
Toxaphene	8001352	126	< 0.5	< 0.5	0.0002	0.73	0.0002	0.00073	0.00075			Inconclusive
Atrazine	1912249		< 0.1	< 0.1	1						1	No
Bentazon	2.5E+07		< 0.5	< 0.5	18						18	No

						Human Health Criteria						
Constituent	CAS Number	CTR #	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential?
Carbofuran	1563662		1.80J	< 5.0	18						18	**No**
2,4-D	94757		< 10.0	< 10.0	70						70	**No**
Dalapon	75990		< 10	< 10	200						200	**No**
1,2-Dibromo-3-chloropropane (DBCP)	96128		< 0.01	< 0.01	0.2						0.2	**No**
Di(2-ethylhexyl)adipate	103231		< 3.0	< 3.0	400						400	**No**
Dinoseb	88857		< 2	< 2	7						7	**No**
Diquat	85007		< 4	1.00J	20						20	**No**
Endothal	145733		< 45	< 45	100						100	**No**
Ethylene Dibromide	106934		< 0.01	< 0.01	0.05						0.05	**No**
Glyphosate	1071836		< 25	10.60J	700						700	**No**
Methoxychlor	72435		< 0.01	< 0.01	0.03	0.03					30	**No**
Molinate (Ordram)	2212671		< 2	< 2	13	13					20	**No**
Oxamyl	2.3E+07		< 20	< 20	50						50	**No**
Picloram	1918021		< 1	0.53J	500						500	**No**
Simazine (Princep)	122349		< 1	< 1	4	10					4	**No**
Thiobencarb	2.8E+07		< 1	< 1	1	3.1					1	**Inconclusive**
2,3,7,8-TCDD (Dioxin)	1746016	16	< 3E-06	< 3E-06	1.3E-08			1.3E-08	1.4E-08			**Inconclusive**
2,4,5-TP (Silvex)	93765		< 1	< 1	10			10			50	**No**
Diazinon	333415		< 0.1	< 0.1	0.05	0.080 (1)	0.050 (1)					**Inconclusive**
Chlorpyrifos	2921882		< 0.5	< 0.5	0.014	0.020 (1)	0.014 (1)					**Inconclusive**

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(1) Department of Fish and Game Criteria, March 2000

OTHER CONSTITUENTS

								Human Health Criteria				
Constituent	**CAS Number**	**CTR #**	**MEC**	**B**	**C**	**CMC**	**CCC**	**Water & Org**	**Org. Only**	**Basin Plan**	**MCL**	**Reasonable Potential?**
Ammonia (as N)	7664417		0.7 (1)	0.0 (1)	1.65 (1)	2.14 (1,2)	1.65 (1,2)	30				**No**
Chloride	1.7E+07		7 (1)	5 (1)	230 (1,2)	860 (1,2)	230 (1,2)				250 (1)	**No**
Foaming Agents (MBAS)			< 0.5	< 0.5	500						500	**No**
Nitrate (as N)	1.5E+07		1.20 (1)	0.60 (1)	10 (1)						10 (1)	**No**
Nitrite (as N)	1.5E+07		0.04 (1)	< 0.00 (1)	1 (1)						1 (1)	**No**
Phosphorus, Total (as P)	7723140											**No**
Specific conductance (EC)			80 (3)	40 (3)	900 (3)						900 (3)	**No**
Sulfate			3.7 (1)	4.0 (1)	250						250 (1)	**No**
Sulfide (as S)			< 0.1	< 0.1								**No**
Sulfite (as SO_3)			< 0.5	< 0.5								**No**
Total Dissolved Solids (TDS)			50 (1)	40 (1)	500						500 (1)	**No**

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(1) Units in mg/L

(2) USEPA Ambient Water Quality Criteria

(3) Units in umhos/cm